

A NEW GENUS OF PERISCOLIDIDAE (DIPTERA) FROM THE NEOTROPICS

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Abstract.—*Parascutops*, a new genus of the family Periscolididae (Diptera), is described, with *Scutops maculipennis* Malloch (Mexico) as its type species. Its relationships within the family Periscolididae and subfamily Periscolidinae are discussed, and diagnoses of the family-group taxa are also provided.

The family Periscolididae, better known in the older literature as Periscelidae, is comparatively new in the nomenclatural history of Diptera (Oldenberg 1914), and on a world basis the family has relatively few species. Fewer than 60 species have been described (Sabrosky 1965, Pires do Prado 1975, Papp 1984a), but more will undoubtedly be added, especially from the tropics (Amorim & Vasconcelos 1990). The purpose of this paper is to describe a new genus within the context of our concept of the family and subfamily Periscolidinae. The family-group taxa are also diagnosed herein, and appropriate keys to the included taxa are provided.

Even though the family has many more taxa than the number of described species now indicates, it is still small by hexapod standards. The small size of the family coupled with the relative scarcity of specimens in collections and the lack of any direct economic importance have resulted in a dearth of research on the family. A few genera have attracted some notice, however, largely because of their unusual natural histories. The genus *Periscelis* is best known because it breeds in fluxes associated with open wounds of deciduous trees (see Teskey 1976 for a review). Unfortunately the immature stages and natural history of the vast majority of species remain unknown.

Although the family is poorly known, the taxa included in it and its characterization

have vacillated rather dramatically. Until recently, the family included only those genera here assigned to the subfamily Periscolidinae (Hennig 1969), and one of these (*Diopsosoma* Malloch) is now questionably associated. In this paper we adopt McAlpine's (1978, 1983) expanded concept of the family. McAlpine (1978, 1983) included a few genera that were previously assigned to the family Aulacigastridae, such as *Cyamops* Melander, *Planinasus* Cresson, and *Stenomicra* Coquillett. These genera are closely related and are here recognized as the subfamily Stenomicrinae. This subfamily has recently been given status at the familial level (Papp 1984b, Khoo & Sabrosky 1989), but we prefer recognition of it as a subfamily, as it is closely related to Periscolidinae. Although McAlpine's characterization of Periscolididae is adopted here, additional changes will undoubtedly be made to the concept of and taxa included in this family as other studies contribute to our understanding of the family.

Methods and Materials

All of the specimens for this study are from the National Museum of Natural History (USNM). The descriptive terminology, with the exceptions noted in Mathis (1986), follows that published in the Manual of Nearctic Diptera (McAlpine 1981). The descriptions are composite, not based solely on a genus or the holotype of a species.

Family Periscelididae Oldenberg, 1914

Periscelidinae Oldenberg, 1914:41.

Periscelidae.—Hendel, 1916:297.

Diagnosis.—Head: Frons with 1–2 fronto-orbital setae; postvertical setae present and divergent or absent (convergent in some *Stenomicro*). Pedicel cap-like and with a dorsal cleft, bearing 1 or more dorsoapical setae; 1st flagellomere frequently sharply deflexed, arising from ventral surface of pedicel; arista pectinate (sometimes bipectinate). Face uniformly sclerotized and arched, usually setose laterally (except in some *Cyamops*).

Thorax: Dorsocentral setae usually 2 (0+2), sometimes 1 (0+1), none presutural; posterior intra-alar seta reduced; scutellum with 1–2 pairs of marginal setae; scutellar disc bare; anepisternal seta usually lacking (present in *Planinasus* and some *Stenomicro*). Wing: subcosta rudimentary, not reaching costal margin, but not fused apically with R_1 ; no costal breaks (a weakness in the costa just apicad of the humeral crossvein in *Planinasus*; a definite narrowing, virtually amounting to a break at Sc in many *Stenomicro* and *Cyamops*); costa extended to vein R_{4+5} or M; cell dm with a fold running entire length; cell cup usually present, although CuA_2 either well developed or extremely reduced. Mid tibia bearing prominent, apicoventral seta.

Discussion.—The two subfamilies recognized in Periscelididae are easily distinguished from each other by the characters that are noted in the following key.

Key to Subfamilies of Periscelididae

1. Fronto-orbital seta 1; ocellar setae present. Costa short, extended to vein R_{4+5} ; CuA_2 weak or lacking, thus lacking a cell cup; postpronotum bearing a well-developed seta
..... Periscelidinae
- Fronto-orbital setae 2; ocellar setae absent. Costa long, extended to vein

M; CuA_2 usually well developed, usually with a distinct cell cup (weak or lacking in *Stenomicro*); postpronotum lacking a well-developed seta (except in some *Stenomicro*)

..... Stenomicroinae

Subfamily Periscelidinae Oldenberg, 1914

Periscelidinae Oldenberg, 1914:41.

Diagnosis.—Head: Eye microsetulose (sometimes sparsely so); occiput with a silvery white, microtomentose area immediately adjacent to posterior margin of compound eye; frons with 1 fronto-orbital seta only, reclinate; postvertical setae present, divergent; ocellar setae present, well developed; face uniformly sclerotized and transversely arched (shield-like in *Scutops*); face setose laterally, strongly receded ventrally, extended laterally below gena; gena extended anterodorsally, bearing a row of setae, with anterior one inserted well above oral margin; mouth opening large.

Thorax: Postpronotal seta well developed. Wing with costa extended to R_{4+5} ; cell cup present, although CuA_2 extremely reduced.

Abdomen: 7th spiracle (“stigma”) not free in female postabdomen. Postabdomen of male symmetrical; cerci usually narrowly fused dorsomedially, well sclerotized, much longer than wide; aedeagus very long, slender; aedeagal apodeme a somewhat flattened, mostly rectangular piece between base of aedeagus and hypandrium; ejaculatory apodeme well developed; gonites short, usually pointed, sheathing base of aedeagus; hypandrium shallowly concave to a deep pocket. See Griffiths (1972) for further discussion of the male terminalia.

Discussion.—The immature stages, and to an extent the adults, are associated with sap from bleeding deciduous trees (species of *Ulmus*, *Quercus*, and *Populus*). Teskey (1976) described and figured a larva of *Periscelis* sp.

The genera comprising Periscelidinae are

those that Hennig (1969) included in his more restricted concept of the family, viz: *Periscelis*, *Marbenia* Malloch, *Neoscutops* Malloch, *Scutops* Coquillett, and the new genus that is described below. Hennig also included *Diopsosoma* Malloch, but its relationship with this family seems doubtful. The five included genera comprise a well-established, monophyletic assemblage, with corroborative synapomorphies as follows: 1. Mouth opening large. 2. Occiput with a silvery white, microtomentose area immediately adjacent to the posterior margin of the compound eye. 3. Only one fronto-orbital seta, reclinate. 4. Costal vein short, extended only to vein R_{4+5} . The generalized condition, found in related genera and families, is for the costal vein to extend to vein M. 5. Vein CuA_2 reduced or absent. Typically this vein is present, resulting in a well-defined cell cup. Its reduction or absence here is an autapomorphy. 6. Several characters of the male terminalia (see Griffiths 1972).

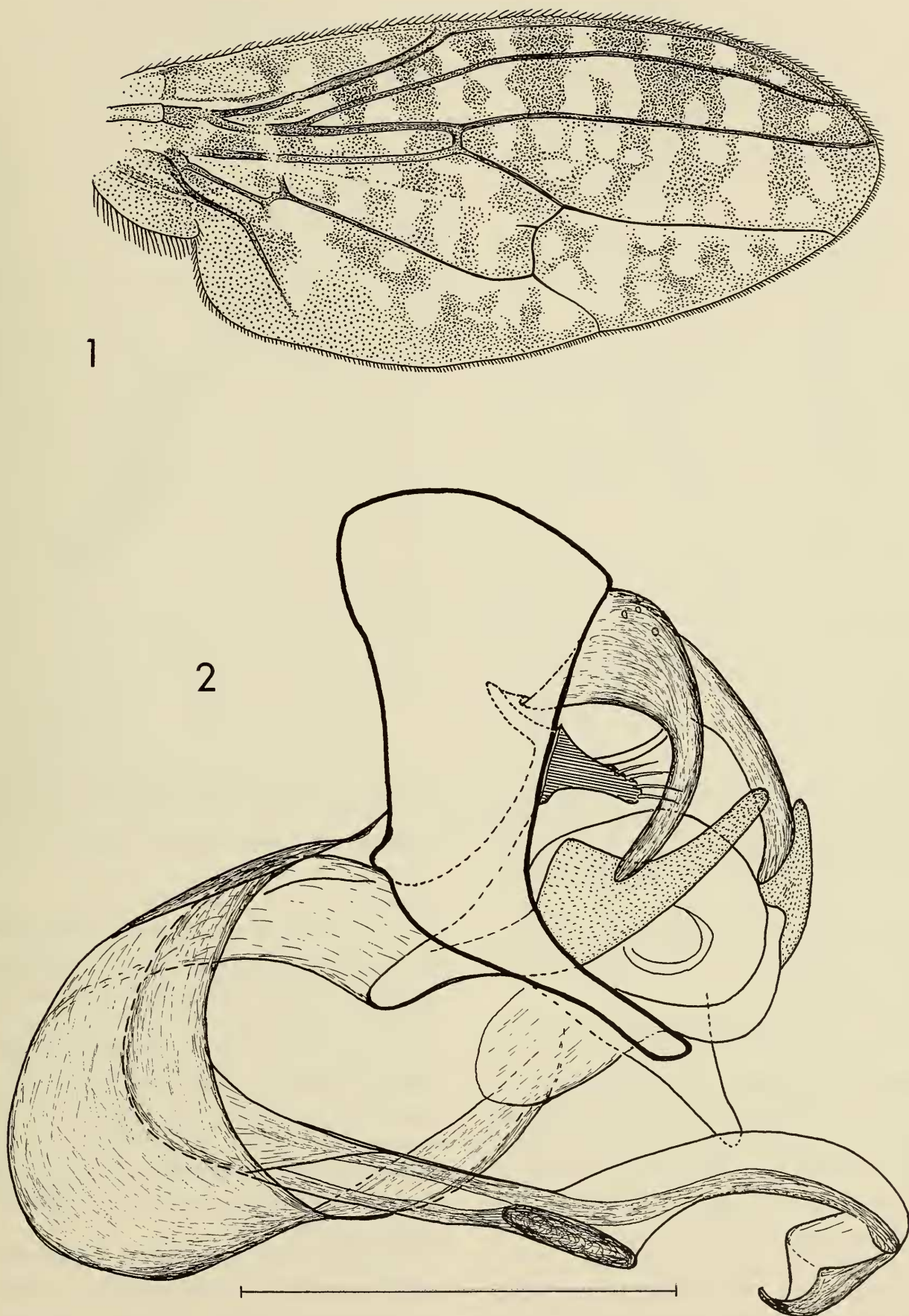
Key to Genera of the Subfamily
Periscelidinae

- 1. Eyes borne on conspicuous stalks; pedicel semiporrect. A presutural seta well developed; anepisternum setose; scutellum triangular, apex pointed and bearing apical patch of setae *Diopsosoma* Malloch
- Eyes not borne on conspicuous stalks; pedicel not porrect. Lacking a presutural seta; anepisternum bare of setae; scutellar apex usually broadly rounded to truncate (pointed in *Parascutops*), lacking apical patch of setae 2
- 2. Face vertically arched in lateral view, not distinctly angulate and dorsal surface of face not distinctly flattened, shield-like 3
- Face distinctly angulate in lateral view 4
- 3. Face smooth, lacking microtomentum, shiny. Wing generally infus-

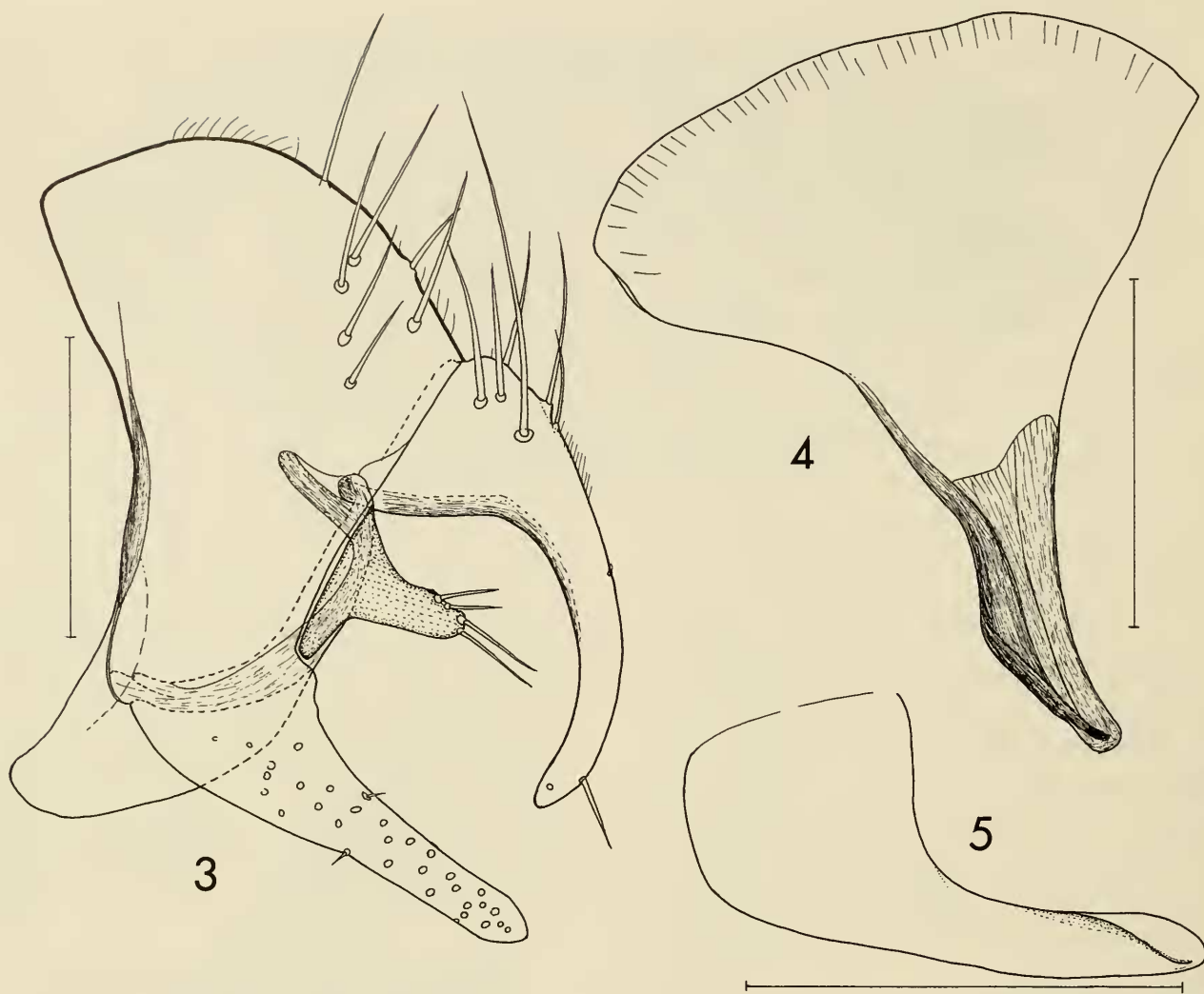
- cate, lacking pale areas; apical section of vein M usually conspicuously arched; vein R_{2+3} curved anteriorly toward costa to just beyond R_1 , thereafter more or less evenly and shallowly arched, parallel to costa until merger with latter; vein R_1 lacking setae on dorsal surface; only 1 posterior dorsocentral seta
..... *Neoscutops* Malloch
- Face microtomentose, appearing dull, bearing 2 conspicuous transverse furrows. Wing infusate on at least apical $\frac{1}{2}$ and with a preapical, pale, transverse band; apical section of vein M straight or very shallowly arched; vein R_{2+3} more or less evenly arched throughout length except just before apex; vein R_1 with dorsal surface setose; posterior dorsocentral setae 2 *Marbenia* Malloch
 - 4. Dorsal area of face narrow, not distinctly flattened and shield-like. Wing generally hyaline, infuscation restricted to at most a transverse band *Periscelis* Loew
 - Dorsal area of face broad, distinctly flattened, shield-like. Wing with at least apical $\frac{1}{3}$ conspicuously infusate 5
 - 5. Wing mottled; mesonotum dull, densely microtomentose, mostly gray, with several brown spots; a pair of distinct prescutellar acrostichal setae. Arista with 3-4 dorsal branches *Parascutops*, new genus
 - Wing darkly infusate on apical $\frac{1}{2}$ - $\frac{1}{3}$ and with subapical, transverse, white area or band; mesonotum very thinly microtomentose, subshiny to shiny; prescutellar acrostichal setae lacking. Arista with 7 or more dorsal branches *Scutops* Coquillett

Parascutops, new genus

Type species. — *Scutops maculipennis* Malloch, 1926, by present designation.
Diagnosis. — Moderately small to medi-



Figs. 1–2. *Parascutops maculipennis* (Malloch): 1, Wing; 2, Male genitalia, sublateral-subventral view (cerci shaded, gonites dotted, epandrial process hatched, scale: 0.2 mm).



Figs. 3–5. *Parascutops maculipennis* (Malloch), male genitalia: 3, Epandrium and outer genital parts in a sublateral-subventral view, i.e., surstylus and cercus in widest extension (epandrial process dotted, most of the setulae on surstylus omitted; scale: 0.1 mm); 4, Ejaculatory apodeme in widest extension (scale: 0.2 mm); 5, Gonite (postgonite), lateral view (scale: 0.1 mm).

um-sized flies, body length 2.5 to 3.2 mm. Dorsum of head and thorax appearing dull, densely microtomentose.

Head: Face distinctly angulate in lateral view; dorsal half of face broad, distinctly flattened, shield-like, resembling species of *Scutops*, ventral half of face lacking transverse furrows. Arista with comparatively few branches dorsally and ventrally, 3–4; pedicel not porrect. Eyes not borne on conspicuous stalks.

Thorax: Mesonotal microtomentum mostly gray but with several brown spots; scutellum triangular, pointed posteriorly, lacking a patch of long setae apically. Chaetotaxy as follows: posterior dorsocentral se-

tae 2; presutural seta lacking; prescutellar acrostichal setae well developed; anepisternum bare of setae. Basalar sclerite with an enlarged, anterior process that projects dorsally, apex bluntly rounded. Wing entirely mottled (Fig. 1); apical section of vein M straight or very shallowly arched; vein R1 bare above; vein R_{2+3} more or less evenly arched throughout length except just before apex; crossvein dm-cu arched to slightly angulate basally.

Abdomen: Male genitalia as follows (Figs. 2–5): Postabdomen completely symmetrical; epandrium narrowed dorsally, becoming wider ventrally and laterally, curved anteriorly; cerci strongly sclerotized, ventral $\frac{2}{3}$

long, narrow, and parallel sided, in lateral view curved anteriorly (Fig. 3), bearing several long setae at base, otherwise setae sparse and short; genital pouch (hypandrium + aedeagal apodeme) small and rather flat, pocket-like (Fig. 2); epandrial process a short digitiform process between bases of cercus and surstylus, bearing setae apically (Figs. 2, 3), this epandrial process is completely apart from the lateral wall of epandrium but connected medially with structures under the epandrium; surstylus narrowly triangular (Figs. 2, 3), ventral $\frac{1}{2}$ digitiform, ventral apex rounded, bearing numerous setulae along entire length; ejaculatory apodeme extremely large (compare scales of Fig. 3 and Fig. 4), distal portion widely triangular, proximal part ("hilt") strongly sclerotized; gonite (postgonite) caudally directed, comparatively long, with a flat, curved ridge subapically, apex rounded (Fig. 5); aedeagus long, thin, ribbon-like as in other genera of the subfamily but apical third with an extra strong curvature and apex with a small curved dentiform process (Fig. 2).

Discussion.—The only species now included in this genus, *maculipennis*, was described in the genus *Scutops*, and certainly the latter is closely related to *Parascutops*. Our study, however, especially of characters from the male terminalia, indicates a sister-group relationship with *Periscelis*, not *Scutops*. The ventrally oriented, slender process at the ventral margin of the epandrium between the surstylus and the cerci is apparently unique to these genera (this structure is secondarily lacking in species of the subgenus *Myodris* Liroy). Likewise the deeply concave genital pouch (hypandrium + aedeagal apodeme) that is semicircular in lateral view is a synapomorphy.

The conformation of the face, especially the flattened, shield-like portion, apparently developed independently in this genus and *Scutops*. Indeed, the shape of the face in *Parascutops* is somewhat intermediate between *Scutops* and *Periscelis*. Although the

face of *Parascutops* is flattened and wide, as in *Scutops*, it differs from the latter in being broadly rounded ventrally, not pointed, and is similar in color to the frons, not white, as in *Scutops*.

Only the following species is now included in this genus.

Parascutops maculipennis (Malloch),
new combination
Figs. 1–5

Scutops maculipennis Malloch, 1926:24 [Mexico. Mexico City; HT ♀, USNM (28458)].—Griffiths, 1972:120–123 [discussion], 282 [figs. of ♂ terminalia].—Pires do Prado, 1975:2 [neotropical catalog].

Distribution.—Neotropical: Mexico (Distrito Federal and Chapingo).

Natural History.—The specimens from Chapingo bear a label "in Casuarina," a tree that has been widely introduced throughout the tropical and temperate world from the Indopacific Region. Because periscelids are not known to be host specific, we suspect that the flies found on this tree were opportunistic and were not introduced along with the tree. An undescribed species of *Periscelis* is known from Australia, however (Colless & McAlpine 1974), and the possibility remains that this species also occurs there.

Acknowledgments

We are grateful to Dr. C. W. Sabrosky and Mr. George C. Steyskal for critically reviewing a draft of this manuscript. Victor Krantz assisted with the production of the illustrations, especially the photograph of the wing, and we gratefully acknowledge his efforts. The research that resulted in this paper was started when L. Papp received a Short-Term Visitors grant from the Office of Fellowships and Grants, and the support of that office is likewise acknowledged.

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